

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: FABRIZI et al. Examiner: SAEED, Usmaan
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METHOD FOR CONFIGURING A DATA PROCESSING SYSTEM FOR
FAULT TOLERANCE

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By:

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RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

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Dear Sir:

This Brief resubmitted in response to the Notice of Non-Compliant Appeal Brief issued June 8, 2007. This Brief now, and as originally filed 01 May 2007, is presented in support of the Notice of Appeal, filed 15 March 2007, from the final rejection of claims 19-53 of the above-identified application, as set forth in the Office Action of 04 January 2007.

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I. REAL PARTY IN INTEREST

The inventors assigned all their rights, title, and interest to International Business Machines Corporation (IBM), Armonk, New York. The assignment was recorded 24 June 2003, at Reel 014240, Frame 0995. IBM is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals and interferences known to the Appellants that are related to, directly affect, are directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-18 (Cancelled)

Claims 19-53 (Rejected)

Claims 1-18 have been cancelled without prejudice or disclaimer. Claims 19-53 of the application are pending. They have been finally rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

Appellants did not amend the claims after the final rejection dated 04 January 2007. The amendments filed 29 September 2006 were entered.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants inventions set forth in independent claims 19 and 33 are a system and an apparatus to configure a highly-available data processing system. A highly-available data processing system preserves data and maintains computer processing and communication capability when one or more components or resources fail (Appellant's specification at page 1 lines 14-16). The claimed system and apparatus have an inspection/interrogation agent 300 and an expert-system module 309 set forth in Figure 3. An embodiment of the inspection agent of claim 19 is software agent 300 located on a server 105a, and an embodiment of the expert-system module 309 is a software module located on a client 115; the server 105a and the client 115 interconnected through a network 110. The inspection agent 300, preferably through batch processes, automatically explores and inspects a production server 105, particularly the file system to identify and collect all computer parameters relevant to the definition of the highly-available computer system as explained on page 13 line 27 through page 14 line 17 of the specification. The production server parameters that are automatically collected include, *inter alia*, a name of the server, type of machine, operating system, mass-storage available, presence or absence of magnetic tape mass-storage, system values defining its behavior, network attributes, file system and structure, user libraries or software objects, data, user programs (page 14 line 27 through page 15 line 25). The claimed inspection/interrogation agent 300 further generates a production server computer parameter database 303, an embodiment of which is shown in Figure 5 and described on page 16 line 1 through page 18 line 18, of the plurality of computer parameters necessary to define a highly-available data processing system.

The system of claim 19 further comprises an expert-system module 309 in Figure 3 that downloads the production server computer parameter database, page 18 lines 25-31, and then generates another database called the project database 315. The project database 315 contains the production server computer parameters 453 (page 20 line 23 through page 21 line 12); a plurality of default questions and additional questions 455 (page 20 line 13-19); the computer parameters derived from the answers to the questions (such as in page 21 lines 17-19); a list of recommendations/suggestions and corrective actions 457 (page 21 lines 19-22), all of which further define the highly-available data processing system. The expert-system module 309 selects

predefined rules 311 to analyze the project database as described, e.g., in page 24 line 15 through page 27 line 29. A generic rule condition consists of an elaborated result that is a value obtained from one of the project databases 453, 455, 457; a comparison operator and a reference parameter (page 25 lines 8-22). The expert-system module 309 then defines the highly-available data processing system as shown in block 423 of Figure 4A.

Independent claim 33 has an interrogation agent 300 as another embodiment of the inspection agent 300 of claim 19 and described above. Independent claim 33 also claims a knowledge expert agent 311 of Figure 4B comprising default inquiries 443, predefined expert rules 445, secondary inquiries 447, and recommendations, suggestions, corrective actions 449, *see* page 19 line 21 through page 20 line 18. The automatic analysis engine 310 is shown in Figure 4C and applies the predefined expert rules to the plurality of computer parameters; this is discussed in the specification in detail on page 24, line 15 through page 29, line 20. The automatic analysis engine 310 also selects secondary inquiries based on answers (steps 461-467 of Figure 4C and page 29 line 24 to page 30 line 27) and selects recommendations, suggestions corrective actions based on the answers and the rules (steps 469-475 of Figure 4D and page 31 line 2 through page 37 line 10).

Independent claim 39 is a method to configure a highly-available data processing system that, as shown in Figure 4A, automatically inspects a production server to obtain the critical computer parameters necessary (step 407) to configure the server into a highly-available system. Step 403 of Figure 4B automatically invokes an expert-system client-side software agent 303 that in turn automatically analyzes the computer parameters 315 using an expert system knowledge database 311 in steps 423 and 461 of Figure 4B.

Independent claim 47 is a configurator of a highly-available data processing environment, comprising at least a knowledge database 311 as a computer program product, support for which is given in the specification at page 13, lines 19-22. The knowledge data base is shown in Figure 4B and comprises default questions 443, automatic analysis rules 445, secondary questions 447, and recommendations/suggestions and prescriptions of corrective actions 449 to define and set up the highly-available data processing environment, *see* step 423 on Figure 4A.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 19-53 are unpatentable under 35 U.S.C. §101 as being directed to non-statutory subject matter.
- B. Whether claims 19-25, 27-30, 33-42 and 45-53 are unpatentable under 35 U.S.C. §102(e) over U.S. Patent Application Publication 2003/0069953 to Bottom et al.
- C. Whether claims 26, 31-32, and 43-44 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Application Publication 2003/0069953 to Bottom et al. and U.S. Patent Application Publication 2002/0052807.

VII. ARGUMENT

A. *Claims 19-53 present statutory subject matter 35 U.S.C. §101.*

The plain and unambiguous meaning of 35 U.S.C. 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability, such as those found in Section 102, 103, and 112. The use of the expansive term “any” in Section 101 represents Congress’s intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in Section 101 and the other parts of Title 35.... Thus, it is improper to read into Section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations. In re Alappat, 33 F.3d 1526, 1542, 31 USPQ.2d 1545, 1556 (Fed. Cir. 1994). Computers came to be generally recognized as devices capable of performing or implementing process steps, or serving as components of an apparatus, without negating patentability of the process or the apparatus. Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F.2d 1053, 1057, 22 USPQ.2d 1033, 1036 (Fed. Cir. 1992). Computer programs embodied in a tangible medium are patentable subject matter under 35 U.S.C. §101. In re Beauregard, 53 F.3d 1583 (Fed. Cir. 995).

Yet, despite the interpretation of the statute 35 U.S.C. §101 rendered by the Federal Circuit Court of Appeals, claims 19-53 are rejected under 35 U.S.C. §101 because they allegedly raise the question as to whether the claims are directed merely to an environment or machines which would result in a practical application producing a concrete useful and tangible results. But, as stated so clearly by the Federal Circuit above, environments and machines are statutory subject matter! Furthermore, the claims are rejected because they allegedly do not recite a practical application by producing a physical transformation or a useful, concrete, and tangible result.

Appellants request the Board to reverse this rejection because the test of “whether the claims are directed merely to an environment or machine which would result in a practical application producing concrete useful and tangible results” is not within the

statutory language of 35 U.S.C. §101, and the U.S. Patent Office is not free to create a limitation on the patentability where none exist in the statute. The rejection should further be overturned on appeal because the claims actually do produce a useful, concrete, and tangible result.

Consider claim 19 as a whole: the preamble recites a system for configuring a highly-available data processing system, which system has two elements: an inspection agent and an expert-system module. The inspection agent automatically explores and inspects a computer system and then identifies and collects parameters that are necessary for the computer system. Then from these tangible acts, the inspection agent generates a database having the computer parameters necessary to configure the production server to be a highly-available processing system. The expert-system module reads the database and queries the database with a number of questions, the questions and answers thereby defining the highly-available computer system within a generated project database having the first database. The expert-system module then applies rules from the answers to define the highly-available processing system.

When claim 33 is read as a whole – the apparatus creates a highly-available data processing system; the apparatus having an interrogation agent, a knowledge expert agent, and an automatic analysis agent. In the field of information technology (IT), what can be a more desirable and tangible result than a highly-available data processing system?

Claim 39 – as a whole – is a method to configure a highly-available data processing system, comprising the steps of automatically inspecting a computer system, automatically invoking an expert system software agent to analyze the parameters of the computer system using an expert knowledge database. The tangible result herein is again that a highly-available data processing system has been configured. Without the claimed method, upon failure of a component, a whole data processing system could be unavailable in a production server required to operate all the time.

Claim 47 as a whole describes a configurator as a computer program product having a knowledge database. When the knowledge database is used, the highly-available data processing system is defined and set-up – yet another tangible and concrete result.

The real, actual, concrete and tangible results of independent claims 19, 33, 39, and 47 are that a highly-available data processing system is defined, configured, and set up.

Appellants are at a loss as to how the apparatus and process steps that review a computer system, determine its critical parameters using a knowledge database as a computer program product and an expert system module, and then define the highly-available system is not statutory and is not useful, concrete, or tangible. Merely saying the claims are not statutory, does not make them so. Appellants contend the rejection of claims 19-53 under 35 U.S.C. §101 is in error and respectfully request the Board to overturn the rejection.

B. Claims 19-53 are not anticipated by Bottom ‘953.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 2 USPQ.2d 1051 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim.” Richardson v. Suzuki Motor Co., 868 F.2d 1226, 9 USPQ.2d 1913 (Fed. Cir. 1989).

Independent claims 19, 33, 39 and 47 are rejected under 35 U.S.C. §102(e) as being anticipated by Bottom ‘953 but Bottom ‘953 does not expressly or inherently describe the inspection agent or the expert-system module. The process block of Bottom ‘953 that extracts health and performance metrics, moreover, does not “generate a computer parameters database of the parameters necessary to configure the production server to be the highly-available data processing system” required by claims 19, 33 and 39. With respect to independent claim 47, Bottom ‘953 does not have a knowledge database having a plurality of default questions to be answered to define a highly-available data processing environment. The rejection equates the health and performance metrics extracted in Bottom ‘953 as the identified and collected computer parameters necessary to configure or define a highly-available data processing environment, but health and performance metrics do not configure a production server to be the highly-available server. Appellants present the type of parameters necessary to configure a data processing system, e.g., a name of the server, type of machine and operating system, mass-storage available, presence or absence of magnetic tape mass-storage, system values defining its behavior, network attributes, file system and structure, user libraries of software objects, data, and user programs; it is common sense that the temperature, power level, CPU utilization, memory utilization, etc., the parameters alleged to be the identical parameters collected by the inspection agent, cannot be configured as a highly-available data processing system.

Respectfully, Appellants request the Board overturn the rejection of independent claims 19, 33, 39 and 47 and their dependent claims as being anticipated by Bottom ‘953.

C. *Claims 26, 31-32, 43-44 are not obvious in view of Bottom ‘953 and Han ‘807.*

If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir 1988). Thus, if independent claim 19 is not obvious, then claims 26, 31-32 cannot be obvious. If independent claim 39 is not obvious, then dependent claims 43-44 cannot be obvious.

Appellants have shown that Bottom ‘953 does not anticipate independent claims 19 and 39. Appellants now show that that Bottom ‘953 itself or in combination with Han ‘807, cannot sustain a *prima facie* case of obviousness because Bottom ‘953 does not suggest collecting or obtaining the computer parameters that define a highly-available data processing system. Bottom ‘953 considers only physical parameters of the computer system, i.e., temperature, power dissipation, CPU and/or memory usage. Appellants reiterate that these measurements do not define a highly-available data processing system and are thus not necessary computer parameters to define a data processing system. Moreover, nowhere does Bottom ‘953 suggest or hint using an expert system to analyze necessary computer parameters that define a highly-available processing system. Merely reading a sensor and determining if it exceeds a threshold value is not an expert system as required by claims 19 and 39.

Appellants further assert that Bottom ‘953 itself or in combination with Han ‘807 does not teach or suggest all the claim limitations – a requirement to establish a *prima facie* case of obviousness, i.e., neither Han ‘807 nor Bottom ‘953 teach automatically inspecting, identifying, and collecting the necessary computer parameters using an expert-system module or software agent that analyzes those parameters to define a highly-available data processing system, as required by claims 26, 31-32 and 43-44; thus, their combination cannot do so. Han ‘807 also does not provide the teaching or suggestion that will supplement Bottom ‘953 to fulfill the claim limitations of independent claims 19 and 39, let alone claims 26, 31-32 and 43-44. The rejection explicitly states that Bottom ‘953 does not explicitly teach a processing system that has one or more file system or that the project database is a relational data base or that the files are structured as XML files or that an HTML report is

generated. Appellants assert that one of ordinary skill in the art would not consider Han ‘807’s teachings of a design-to-order on-line design community to be applicable to define a highly available data processing system, and Han ‘807 does not teach or suggest this modification.

Appellants respectfully request the Board of Patent Appeals to overturn the rejection of claims 26, 31-32, and 43-44 as being obvious over Bottom ‘953 and Han ‘807 because a *prima facie* case of obviousness has not been established.

D. Summary

Appellants pray for relief from the rejection of the claims under 35 U.S.C. §101 because concrete, useful and tangible results – inspecting, collecting, analyzing computer parameters with an expert-system to define a highly available data processing system - are produced from the claimed invention.

Appellants pray for relief from the rejection of independent claims 19, 33, 39 and 47 as being anticipated by Bottom '953 because Bottom '953 does not teach every element of the claims; specifically Bottom '953 does not "generate a computer parameter database of the parameters necessary to configure the production server to be the highly-available data processing system" required by claims 19, 33 and 39; nor does Bottom '953 teach an expert system to analyze the database as required by claims 19, 33, 39 and 47.

Appellants pray for relief from the rejection of claims 26, 31-32 and 43-44 as being obvious over a combination of Bottom '953 and Han '807 because neither reference teaches or suggest automatically inspecting and collecting the parameters necessary to a highly-available data processing system, and then analyzing those parameters with an expert-system module. Han '807, moreover, relates to an on-line community designing a product, not the definition of a highly-available reliable data processing system.

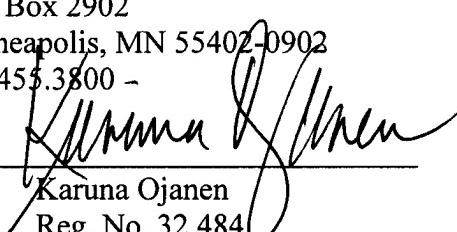
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Respectfully submitted,

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CLAIMS APPENDIX

19. A system for configuring a highly-available data processing system, comprising:
 - an inspection agent adapted to:
 - automatically explore and inspect a production server;
 - identify and collect a plurality of production server computer parameters;
 - generate a production server computer parameter database of the production server computer parameters necessary to configure the production server to be the highly-available data processing system;
 - an expert-system module adapted to:
 - read the production server computer parameter database;
 - generate a project database comprising the production server computer parameters, a plurality of default questions and a plurality of additional questions, if any, and the respective production server computer parameters derived from the answers used to define the highly-available data processing system;
 - select from a plurality of predefined rules those rules pertinent to analyze the project database; and
 - define the highly-available data processing system from the production server computer parameter database.

20. The system for configuring a highly-available data processing system of claim 19 further comprising a user-interactive module by which to display the project database to a user.
21. The system for configuring a highly-available data processing system of claim 20 wherein the user-interactive module further comprises a menu by which a user may enter additional answers to the questions and additional information to the project database to define the highly-available data processing system.
22. The system for configuring a highly-available data processing system of claim 20 wherein the user-interactive module permits a user to select the computer parameters defining the highly-available data processing system.
23. The system for configuring a highly-available data processing system of claim 19 wherein the expert system client-side module determines and selects additional questions that require answers in order to analyze the project database.
24. The system for configuring a highly-available data processing system of claim 23 wherein the expert system client-side module automatically inspects the project database to determine answers to the additional questions.

25. The system for configuring a highly-available data processing system of claim 19 wherein the computer processing parameters to define the highly-available data processing system comprise one or more of the following: names of one or more computer processing machines, types of the one or more computer processing machines, operating systems of the one or more computer processing machines, mass-storage connected to the one or more computer processing machines, magnetic tape storage connected to the one or more computer processing machines, a plurality of system values of the one or more computer processing machines, or one or more network attributes of the one or more computer processing machines.
26. The system for configuring a highly-available data processing system of claim 19 wherein the computer processing parameters to define the highly-available data processing system comprises one or more file systems of the production server.
27. The system for configuring a highly-available data processing system of claim 19 wherein the computer processing parameters to define the highly-available data processing system comprises one or more user libraries, one or more software objects, or data used by the production server.
28. The system for configuring a highly-available data processing system of claim 19 wherein the computer processing parameters to define the highly-available data processing system comprises one or more user programs that exploit operating system commands relevant to the highly-available data processing system.

29. The system for configuring a highly-available data processing system of claim 19 wherein the expert system client side module further generates one or more recommendations or corrective actions to define the highly-available data processing system.
30. The system for configuring a highly-available data processing system of claim 29 wherein the expert system client side module further automatically implements the one or more recommendations or corrective actions to define the highly-available data processing system.
31. The system for configuring a highly-available data processing system of claim 19 wherein the project database is a relational database.
32. The system for configuring a highly-available data processing system of claim 19 wherein the default questions, the additional questions, the plurality of predefined rules, and the recommendations and corrective actions are structured as extensible markup language (XML) files.
33. An apparatus to create a highly-available data processing system, comprising:
an interrogation agent to inspect a computer and to generate a database having a plurality of computer parameters necessary to define a highly-available data processing system;

a knowledge expert agent comprising a plurality of default inquiries, a plurality of predefined expert rules, a plurality of secondary inquiries, and a plurality of recommendations, suggestions, corrective actions to define a highly-available data processing system;

an automatic analysis engine to:

apply the predefined expert rules to the plurality of computer parameters; to select any of the plurality of secondary inquiries based on answers to the default inquiries and the predefined expert rules to the computer parameters; and

to select any recommendations, suggestions, or corrective actions determined by answers to the default and the secondary inquiries and the predefined expert rules to implement on the computer to define a highly-available data processing system.

34. The apparatus to create a highly-available data processing system, as in claim 33, wherein the interrogation agent stores the computer parameters necessary to define a highly-available data processing system.

35. The apparatus to create a highly-available data processing system, as in claim 33, wherein the automatic analysis engine generates a project database, the project database comprising:

the computer parameters;
the default and the secondary inquiries used;

the answers to the default and secondary inquiries; and
the suggestions, recommendations, or corrective actions generated.

36. The apparatus to create a highly-available data processing system, as in claim 35, wherein the project database is stored on a client computer.
37. The apparatus to create a highly-available data processing system, as in claim 35, wherein the project database is stored in a repository.
38. The apparatus to create a highly-available data processing system, as in claim 33, further comprising a collocation agent that automatically collocates the computer parameters and creates a highly-available data processing system.
39. A method to configure a highly-available data processing system, comprising the steps of:
 - automatically inspecting a production server to obtain a plurality of computer parameters necessary to configure the production server into the highly-available data processing system;
 - automatically invoking an expert-system client-side software agent;
 - the expert-system client side software agent automatically analyzing the plurality of computer parameters using an expert knowledge database.

40. The method to configure a highly-available data processing system, as in claim 39, further comprising installing a server-side software agent onto the production server prior to the step of automatically inspecting the production server that performs the step of automatically inspecting the production server to obtain a plurality of computer parameters necessary to configure the production server into the highly-available data processing system.
41. The method to configure a highly-available data processing system as in claim 39 further comprising the expert-system client side software agent automatically implementing a corrective action required by a plurality of default questions and rules, the corrective action and the plurality of default questions and rules comprising the expert knowledge database.
42. The method to configure a highly-available data processing system as in claim 39 further comprising the expert-system client side software agent automatically generating a report of the analysis of the plurality of computer parameters using the expert knowledge database.
43. The method to configure a highly-available data processing system as in claim 42 further comprising generating an HTML report of the analysis.
44. The method to configure a highly-available data processing system as in claim 42 further comprising generating an XML report of the analysis.

45. The method to configure a highly-available data processing system as in claim 39 further comprising automatically collocating the computer parameters into the highly-available data processing system.
46. The method to configure a highly-available data processing system as in claim 45 further comprising automatically mirroring the collocated computer parameters in a second data processing system.
47. A configurator of a highly-available data processing environment, comprising: a knowledge database as a computer program product stored in a computer-readable medium, the knowledge database further comprising:
- a plurality of default questions to be answered for a data processing system to define a highly-available data processing environment;
 - a plurality of automatic analysis rules to apply to the answers of the default questions to define the highly-available data processing environment;
 - a plurality of secondary questions to be answered dependent upon the automatic analysis rules;
 - a plurality of recommendations/suggestions and prescriptions of corrective actions that could be performed on the data processing system to define and set up the highly-available data processing environment.

48. The configurator of claim 47 further comprising: an expert analysis engine as a computer program product stored in a computer-readable medium whereby the expert analysis engine applies the knowledge database to the data processing system.
49. The configurator of claim 47 further comprising an interrogation agent as a computer program product stored in a computer-readable medium whereby the interrogation agent inspects and selects and stores a plurality of computer processing parameters of the data processing system and submits the plurality of computer processing parameters to the expert analysis engine for application of the knowledge database to define and setup the highly-available data processing environment.
50. The configurator of claim 49 further comprising a report stored in a computer-readable medium, the report comprising a description of the highly-available data processing environment inspected by the interrogation agent, and analyzed by the expert analysis engine according to the questions and rules and recommendations and corrective actions of the knowledge database.
51. The configurator of claim 50 wherein the interrogation agent, the knowledge database, and the expert analysis engine are connected to each other across a data communications network.

52. The configurator of claim 47 further comprising a knowledge database management software module as a computer program product stored in a computer-readable medium whereby a user can modify the contents of the knowledge database.
53. The highly-available data processing environment configured by the configurator of claim 49.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None